monomers with polyoxyethylene functional groups, polyoxyethylene-polyoxypropylene group-containing monomers and comonomers with ethylenically unsaturated sulfonate functional groups.

These plasticizers are characterized by longer-lasting plasticizing action, but tend to water separation (bleeding). This is attended by impaired working (distribution on the substrate to be smoothed) and poor self-healing.

EP-A 1090901 claims a process for preparing polyalkylene glycol monomers by esterifying a polyalkylene glycol with an unsaturated carboxylic acid. It further describes the production of dispersants which are each constructed from an unsaturated polyetherester monomer, a methacrylic acid (salt) monomer and also, if appropriate, a methallylsulfonate monomer. DE-A 19806482 concerns thickeners based on copolymers based on a) acrylamidoalkylsulfonates, b) (meth)acrylamides, c) ethylenically unsaturated ammonium compounds, d) ethylenically unsaturated polyethylene glycols. US-A 5362829 describes cement plasticizers based on copolymers of a) (meth)acrylic acid salt, b) methallylsulfonate, c) polyethylene glycol allyl ether, d) polyethylene glycol (meth)acrylate, e) alkyl (meth)acrylate.

Further, casein is used as a plasticizer in flowable hydraulically setting mortar systems. Casein provides unique flow, working and self-healing properties for flowable hydraulically setting mortar systems and in addition has binder characteristics. Casein is a milk protein, which is obtained by acid precipitation. It is characterized by major quality variations depending on the particular season and fodder quality. This renders its use in flowable hydraulically setting mortar systems more difficult. Furthermore, after working,

casein-containing flowable hydraulically setting mortar systems tend to the formation of mould cultures, which is not desirable in living areas.

The problem was therefore to provide dispersants which display a long-lasting plasticizing action in cement systems, are compatible both with emulsifier and also with protective colloid stabilized systems, and exhibit the advantageous rheological properties of casein.

The object of the invention are dispersants based on copolymers obtainable by polymerization of

a) 5 to 70 wt. % of one or more monomers from the group consisting of ethylenically unsaturated monocarboxylic acids, ethylenically unsaturated carboxamides, ethylenically unsaturated dicarboxylic acids and anhydrides thereof, each with 4 to 8 C atoms,

and (meth)acrylate monoesters of dialcohols with 2 to 8 C atoms,

b) 1 to 40 wt. % of one or more monomers from the group consisting of ethylenically unsaturated compounds with sulfonate or sulfate functional groups,

c) 10 to 80 wt. % of one or more monomers from the group consisting of ethylenically unsaturated compounds of polyethylene glycols with 1 to 300 ethylene oxide units, and terminal OH-groups or ether groups -OR', wherein R' can be an alkyl, aryl, alkaryl or aralkyl residue with 1 to 40 C atoms,

d) 5 to 80 wt. % of one or more monomers from the group consisting of ethylenically unsaturated compounds of polyethylene glycols with 1 to 300 alkylene oxide units from alkylene groups with 3 to 4 C atoms, and terminal OH-groups or ether groups -OR', wherein R' can be an alkyl, aryl, alkaryl or aralkyl residue with 1 to 40 C atoms,

each based on the total weight of the copolymer, the stated amounts in wt. % totaling 100 wt. %.

Suitable monomers a) are acrylic acid, methacrylic acid, itaconic acid, fumaric acid, maleic acid, and the salts of the said carboxylic acids, maleic anhydride, acrylamide, methacrylamide, hydroxyethyl (meth)-acrylate, hydroxypropyl (meth)acrylate and hydroxybutyl (meth)acrylate. Preferred are acrylic acid and methacrylic acid and salts thereof. The monomer units a) are preferably copolymerized in an amount of 5 to 40 wt. %, especially preferably 10 to 25 wt. %.

Suitable monomers b) are vinylsulfonic acid and alkali and alkaline earth metal salts thereof, styrenesulfonic acid and alkali and alkaline earth metal salts thereof, methallylsulfonic acid and alkali and alkaline earth metal salts thereof, p-methallyloxyphenylsulfonic acid and alkali and alkaline earth metal salts thereof, and sulfonic acids of the general formula $CH_2=CR^1-CO-X-$